Nursing Care for Reduction of Pressure Ulcers in Critical Patients

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PROJECT OBJECTIVES

- Identify a patient in your clinical practicum with a common nursing care problem. Identify an associated nursing diagnosis.
- Evaluate prevalence of nursing care problem.
- Perform a literature review and interpret relevant research to support evidence-based patient care for this problem.
- Demonstrate importance of nursing care in prevention and care of patient with the identified problem.

PATIENT BACKGROUND

The identified patient is a middle aged male who presented to the hospital with a subdural hemorrhage and right frontal and temporal bone comminuted fractures from a 10-12 foot fall. He was conscious on arrival but quickly became unconscious. Patient was transported to the ICU after being intubated and treated in the Emergency Department.

Important Characteristics:

- Intubated
- Diet: NPO
- Foley Catheter
- Nasogastric tube
- Ventilator with VC/AC 14 breaths/min at 35% O2
- CVC Triple Lumen
- Arterial Line
- 3 Peripheral IVs
- Ventriculostomy with Ventricular Monitoring Device and Drainage System
- Glascow Coma Scale: 6
- Neuro Checks Every Hour
- Sequential Compression Devices
- Wrist Restraints

PRESSURE ULCERS: A PATIENT CARE ISSUE

According to the U.S. Department of Health and Human Services (2014):

- Around 2.5 million patients get pressure ulcers in the hospital per year. This is not counting patients in nursing homes.
- In hospitals, this costs up to $11.6 billion/year, or anywhere from $20,900 to $151,700 per pressure ulcer per patient.
- It is estimated that 60,000 patients die due to pressure ulcers annually.
- Pressure ulcers rate higher in lawsuits than falls.

Pressure ulcers can occur for a variety of reasons including:

- Poor nutrition (such as NPO status)
- Failure to turn every two hours
- Pressure on bony prominences such as the coccyx, heels, hips, and more.
- Pressure from mechanical devices
  - Ex: tubing from nasal cannula on the ear, tape or plastic holding ET tube in place for ventilation
- Inability to perceive pain
- Low score on the Braden Scale
- Impaired mobility
- Increased age or increased BMI

Main Nursing Diagnosis:

- Risk for Impaired Skin Integrity **r/t** physical immobilization, brain trauma, 9 on the Braden Scale, multiple invasive devices, presence of edema, and a diet of NPO.
- *This patient is at a high risk for pressure ulcers as a result of this nursing diagnosis.

PICOT QUESTION

For patients at risk for pressure ulcers related to impaired skin integrity, does the use of screening tools, recognition of risk factors, increased nutrition, and special protection measures reduce the rate of hospital acquired pressure ulcers compared with frequent repositioning alone?

LITERATURE REVIEW

REPOSITIONING

Gillespie, Chaboyer, McInnes, Kent, Whitty, & Thalib (2015)

Meta-analysis of Randomized Controlled Trials from 1948 to 2013

Purpose: To determine best practice for repositioning as a measure of prevention of pressure ulcers.

Problem Statement: There is not enough evidence-based research with repositioning to support the best practice for preventing pressure.

Level of Evidence: I

Findings: Repositioning is an integral part in a nurse's job for prevention of pressure ulcers in a patient.

Results: Studies were unable to determine effectiveness of degree tilts and hourly repositioning. Viseoelastic mattresses decrease rate of pressure ulcers.

SEVERE TRAUMATIC BRAIN INJURY (TBI)

Dhandapani, Dhandapani, Agarwal, & Mahapatra (2014)

Nonexperimental observational study with a prospective design

Purpose: Assess numerous aspects contributing to pressure ulcer development in patients with severe TBI.

Problem Statement: Severe TBI patients are at high risk of mortality and pressure ulcers increase that risk.

Level of Evidence: II

Findings: Due to the state that brain injury patients are in, they are at a very high risk for pressure ulcers.

Results: 16% of patients acquired a pressure ulcer within 21 days of admission despite all interventions.

RISK PREDICTION

Deng, Yu, & Hu (2017)

Correlational study with retrospective design and cluster sampling

Purpose: Create new predictor methods of pressure ulcers and compare to Braden Scale; Evaluate validity of Braden Scale

Problem Statement: The Braden Scale overestimates incidence of pressure ulcers in the ICU, so there need to be other predictors.

Level of Evidence: II

Findings: The Braden Scale may be overused or not use specific enough predictors for pressure ulcers in patients, so other models should be used in conjunction.

Results: Best Braden Scale cutoff score is 12 for prediction of pressure ulcers in the ICU; Decision tree model: 7 classification rules and 4 types of high-risk populations

SPECIALTY LINENS

Freeman, Dickinson, Tschannen, James, & Friedman (2017)

Correlational study with retrospective design

Purpose: Evaluate effectiveness of specialty linens on rate of pressure related injuries in the ICU.

Problem Statement: Other interventions to prevent pressure ulcers were tried with limited results, so something else needed to be tried.

Level of Evidence: II

Findings: Using synthetic silklike fabric helps prevent pressure related injuries by reducing friction and shear in conjunction with other prevention measures.

Results: Total PUs declined from 7.7% to 5.3% after using specialty linens.

NUTRITION

Roberts, Chaboyer, & Desbrow (2015)

Nonexperimental observational study with a prospective design

Purpose: Evaluate use of malnutrition risk screening and risk for pressure ulcers in the hospital.

Problem Statement: Malnutrition risk screening is not used enough and places patients at higher risk for pressure ulcers.

Level of Evidence: II

Findings: Malnutrition risk screening is essential to prevent pressure ulcers and find high risk patients.

Results: Only 59% of the patients in this study were screened using the MST.

SUMMARY

There is not yet one cure-all prevention measure and treatment for pressure ulcers.

There are many factors that place a patient at risk for impaired skin integrity and pressure ulcers.

What is the most effective way to prevent pressure ulcers?

- Assess the patient constantly for risk factors and for change in baseline status
- Screen (Braden Scale)
- Reposition frequently (at least every two hours)
- Increase nutrition and assess for malnutrition
- Implement protection measures, such as specialty beds or linens

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